Project Name: **Improving Soil Survey Field Measurement and Interpretation. LWRRDC Project No. 90/R16**
Project Code: **Morphology** **Site ID:** **CP318** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	N.J. McKenzie	**Locality:**	
Date Desc.:	27/08/92	**Elevation:**	70 metres
Map Ref.:	Sheet No. : 9232-3-N 1:25000	**Rainfall:**	No Data
Northing/Long.:	6367300 AMG zone: 56	**Runoff:**	No Data
Easting/Lat.:	367400 Datum: AGD66	**Drainage:**	Imperfectly drained

Geology

ExposureType:	Soil pit	**Conf. Sub. is Parent. Mat.:**	No Data
Geol. Ref.:	No Data	**Substrate Material:**	Soil pit, 0.8 m deep,Sandstone

Land Form

Rel/Slope Class:	Undulating low hills 30-90m 3-10%	**Pattern Type:**	No Data
Morph. Type:	Upper-slope	**Relief:**	30 metres
Elem. Type:	No Data	**Slope Category:**	Gently inclined
Slope:	5 %	**Aspect:**	315 degrees

Surface Soil Condition (dry): Hardsetting

Erosion: Minor (sheet)

Soil Classification

Australian Soil Classification:
Red Sodosol

Mapping Unit: N/A
Principal Profile Form: Dr2.41
Great Soil Group: N/A

ASC Confidence:
No analytical data are available but confidence is fair.

Site Disturbance: Limited clearing, for example selective logging

Vegetation: Low Strata - Tussock grass, 0.26-0.5m, Very sparse. *Species includes - None recorded
Mid Strata - Tree, 1.01-3m, Mid-dense. *Species includes - Eucalyptus crebra, Eucalyptus maculata
Tall Strata - Tree, 20.01-35m, Very sparse. *Species includes - Eucalyptus maculata

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

A11	0 - 0.03 m	Yellowish brown (10YR5/6-Moist); Light brownish grey (10YR6/2-Dry); ; Silty loam; Weak grade of structure, 10-20 mm, Subangular blocky; Rough-ped fabric; Moderately moist; Strong consistence; 2-10%, fine gravelly, 2-6mm, rounded, dispersed, coarse fragments; Field pH 6 (Raupach); Common, medium (2-5mm) roots; Clear, Smooth change to -
A2	0.03 - 0.13 m	Light brownish grey (10YR6/2-Moist); Light grey (10YR7/2-Dry); , 10YR63, 10-20% , 15-30mm, Faint; Silty clay loam; Massive grade of structure; Rough-ped fabric; Moderately moist; Strong consistence; 2-10%, fine gravelly, 2-6mm, rounded, dispersed, coarse fragments; Field pH 6 (Raupach); Common, medium (2-5mm) roots; Abrupt, Smooth change to -
B21	0.13 - 0.25 m	Dark reddish brown (5YR3/4-Moist); , 2.5YR42, 10-20% , 15-30mm, Distinct; Medium heavy clay; Strong grade of structure, 10-20 mm, Polyhedral; Smooth-ped fabric; Moderately moist; Very firm consistence; Common cutans, 10-50% of ped faces or walls coated, prominent; Field pH 5 (Raupach); Many, medium (2-5mm) roots; Gradual, Smooth change to -
B22	0.25 - 0.35 m	Dark red (2.5YR3/6-Moist); , 7.5YR62, 10-20% , 15-30mm, Distinct; Medium heavy clay; Moderate grade of structure, 20-50 mm, Polyhedral; Smooth-ped fabric; Moist; Very firm consistence; Common cutans, 10-50% of ped faces or walls coated, distinct; Field pH 5 (Raupach); Common, medium (2-5mm) roots; Diffuse, Smooth change to -
B23	0.35 - 0.52 m	Yellowish red (5YR5/6-Moist); , 7.5YR62, 10-20% , 5-15mm, Distinct; Medium heavy clay; Moderate grade of structure, 20-50 mm, Polyhedral; Smooth-ped fabric; Moist; Very firm consistence; Common cutans, 10-50% of ped faces or walls coated, distinct; Field pH 5 (Raupach); Common, medium (2-5mm) roots; Clear, Smooth change to -
B3	0.52 - 0.75 m	Brown (7.5YR5/4-Moist); , 10YR62, 20-50% , 30-mm, Prominent; Medium heavy clay; Weak grade of structure, 20-50 mm, Polyhedral; Smooth-ped fabric; Moist; Firm consistence; Few cutans, <10% of ped faces or walls coated, faint; Field pH 5 (Raupach); Common, medium (2-5mm) roots; Clear, Smooth change to -
C	0.75 - 0.95 m	Reddish yellow (7.5YR6/8-Moist); , 10YR62, 20-50% , 30-mm, Prominent; Medium heavy clay; Rough-ped fabric; Moist; Field pH 5 (Raupach); Few, medium (2-5mm) roots; Clear, Smooth change to -

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R	0.95 -	m	Rock

Morphological Notes

B22 Structure difficult to assess due to moist state.

Observation Notes

Recently burnt with abundant regeneration, Tomago coal measures.

Site Notes

East Maitland, 9km Sth of East Maitland (Morph 17)

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Laboratory Test Results:

Depth	pH	1:5 EC	Exchangeable Cations				Exchangeable Acidity	CEC	ECEC	ESP
			Ca	Mg	K	Na				
m		dS/m				Cmol (+)/kg				%
0 - 0.03	5.71A	0.09A	3.6B	4.9	0.79	0.48		15.3A		3.14
0.03 - 0.13	5.45A	0.06A	0.52B	2.6	0.46	0.36		8.6A		4.19
0.03 - 0.13	5.45A	0.06A	0.52B	2.6	0.46	0.36		8.6A		4.19
0.03 - 0.13	5.45A	0.06A	0.52B	2.6	0.46	0.36		8.6A		4.19
0.13 - 0.25	5.21A	0.23A	0.05B	8.8	0.71	1.5		16.4A		9.15
0.16 - 0.34										
0.16 - 0.34										
0.25 - 0.35	4.91A	0.39A	0.03B	11.4	0.62	2.5		19.8A		12.63
0.35 - 0.52	4.68A	0.53A		11.8	0.56	3.3		21.4A		15.42
0.4 - 0.6										
0.4 - 0.6										
0.52 - 0.75	4.64A	0.68A		13.1	0.62	4		23.9A		16.74
0.75 - 0.95	4.85A	0.51A		8.6	0.31	2.8		14.6A		19.18
0.95 -										

Depth	CaCO3	Organic C	Avail. P	Total P	Total N	Total K	Bulk Density	Particle Size Analysis				
								GV	CS	FS	Silt	Clay
m	%	%	mg/kg	%	%	%	Mg/m3			%		
0 - 0.03		7.8B						0				
0.03 - 0.13		3.42B					1.38	6				
							1.44					
							1.39					
							1.37					
							1.40					
0.03 - 0.13		3.42B					1.38	6				
							1.44					
							1.39					
							1.37					
							1.40					
0.03 - 0.13		3.42B					1.38	6				
							1.44					
							1.39					
							1.37					
							1.40					
0.13 - 0.25		1.06B						0				
0.16 - 0.34							1.42					
							1.40					
							1.37					
							1.37					
0.16 - 0.34							1.42					
							1.40					
							1.37					
							1.37					
0.25 - 0.35		0.55B					1.42	5				
0.35 - 0.52		0.41B						0				
0.4 - 0.6							1.39					
							1.45					
							1.38					
							1.35					

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0.4 - 0.6		1.39	
		1.45	
		1.38	
		1.35	
0.52 - 0.75	0.28B	1.37	0
0.75 - 0.95	0.18B		0
0.95 -			

Depth	**COLE**	**Gravimetric/Volumetric Water Contents**							**K sat**	**K unsat**
		Sat.	**0.05 Bar**	**0.1 Bar**	**0.5 Bar**	**1 Bar**	**5 Bar**	**15 Bar**		
m				**g/g - m3/m3**					**mm/h**	**mm/h**
0 - 0.03										
0.03 - 0.13	0.013B	0.4E	0.35E	0.33E	0.28D		0.18F	0.11F	91D	23.1A
		0.42E	0.37E	0.35E	0.29D		0.18F	0.11F		
		0.38E	0.35E	0.33E	0.28D					
		0.38E	0.35E	0.33E	0.28D					
0.03 - 0.13	0.013B	0.4E	0.35E	0.33E	0.28D		0.18F	0.11F	91D	23.1A
		0.42E	0.37E	0.35E	0.29D		0.18F	0.11F		
		0.38E	0.35E	0.33E	0.28D					
		0.38E	0.35E	0.33E	0.28D					
0.03 - 0.13	0.013B	0.4E	0.35E	0.33E	0.28D		0.18F	0.11F	91D	23.1A
		0.42E	0.37E	0.35E	0.29D		0.18F	0.11F		
		0.38E	0.35E	0.33E	0.28D					
		0.38E	0.35E	0.33E	0.28D					
0.13 - 0.25										
0.16 - 0.34		0.46E	0.45E	0.44E	0.41D		0.32F	0.28F	0.09D	0.05A
		0.47E	0.44E	0.43E	0.4D		0.31F	0.32F		
		0.43E	0.42E	0.42E	0.39D					
		0.45E	0.45E	0.44E	0.41D					
0.16 - 0.34		0.46E	0.45E	0.44E	0.41D		0.32F	0.28F	0.09D	0.05A
		0.47E	0.44E	0.43E	0.4D		0.31F	0.32F		
		0.43E	0.42E	0.42E	0.39D					
		0.45E	0.45E	0.44E	0.41D					
0.25 - 0.35	0.096B									
0.35 - 0.52										
0.4 - 0.6		0.46E	0.48E	0.47E	0.44D		0.35F	0.29F	0.00064D	0.0003A
		0.44E	0.43E	0.43E	0.41D		0.32F	0.28F		
		0.45E	0.45E	0.45E	0.43D					
		0.48E	0.48E	0.47E	0.45D					
0.4 - 0.6		0.46E	0.48E	0.47E	0.44D		0.35F	0.29F	0.00064D	0.0003A
		0.44E	0.43E	0.43E	0.41D		0.32F	0.28F		
		0.45E	0.45E	0.45E	0.43D					
		0.48E	0.48E	0.47E	0.45D					
0.52 - 0.75	0.096B									
0.75 - 0.95										
0.95 -										

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Laboratory Analyses Completed for this profile

15A2_CA	Exchangeable bases (Ca2+,Mg2+,Na+,K+) - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_CEC	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_K	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_MG	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_NA	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
3A1	EC of 1:5 soil/water extract
4A1	pH of 1:5 soil/water suspension
5A1	Chloride - 1:5 soil/water extract, potentiometric titration
6B2	Total organic carbon - high frequency induction furnace, volumetric
P10_GRAV	Gravel (%)
P10_S_0.20	0.20 micron (cumulative %) - Sedigraph
P10_S_1000	1000 micron (cumulative %) - Sedigraph
P10_S_125	125 micron (cumulative %) - Sedigraph
P10_S_2	2 micron (cumulative %) - Sedigraph
P10_S_20	20 micron (cumulative %) - Sedigraph
P10_S_2000	2000 micron (cumulative %) - Sedigraph
P10_S_250	250 micron (cumlative %) - Sedigraph
P10_S_31.2	31.2 micron (cumulative %) - Sedigraph
P10_S_500	500 micron (cumulative %) - Sedigraph
P10_S_63	63 micron (cumulative %) - Sedigraph
P3A1	Bulk density - g/cm3
P3B2VL_15	15 BAR Moisture m3/m3 - Volumetric using disturbed sample on pressure plate
P3B2VL_5	5 BAR Moisture m3/m3 - Volumetric using disturbed sample on pressure plate
P3B3VLb001	0.01 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb003	0.03 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb005	0.05 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb01	0.1 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb05	0.5 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLbSAT	Saturated Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P4_50_McK	Unsaturated Hydraulic Conductivity - 50mm potential (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P4_sat_McK	Saturated Hydraulic Conductivity (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P5_LS_MOD	Modified linear shrinkage (McKenzie, Jacquier and Ringrose-Voase, AJSR, 1994, 32, 931-8)